REMARKS

In response to the Final office action dated May 15, 2003, Applicant filed an After Final Response on July 9. There was Advisory Action dated July 30, 2003 and the amendments were not entered resulting in the filing of a Request for Continued Examination (RCE) filed on Aug. 15, 2003. This non-final office action is in response to the RCE filing and cites the same references, namely Kocher and Porchia.

The Kocher reference was previously distinguished in detail in the seventeen pages of the After Final Office Action Response which was entered in conjunction with the RCE. Furthermore, pursuant to telephone communications with Examiner Patterson on Aug. 8, 2003 and Aug. 11, 2003, a general agreement was achieved by distinguishing that the present invention establishes an atmospheric condition in the package that is different than ambient air (20.9% O_2, 0.03% CO_2) outside the package. The present office action appears to hinge on the transient state in Kocher before it reaches ambient air.

The extensive file history in this case distinguishes the present invention from every cited reference, including Kocher and Porchia. Due to the extraordinarily lengthy prosecution on this application, the Applicant respectfully requests expedited processing and a telephonic interview or personal interview if an allowance is not granted for all claims.

These present Amendments should place the application in condition for allowance or in better condition for appeal and should be entered. No new matter is added.

Telephone Interview

The Applicant thanks the Office for the Telephone Interview conducted on Feb. 27, 2004 between the under-signed Attorney Asmus and Examiner Patterson. An initial agreement was reached wherein independent claim 1 has been amended as indicated herein. Applicant's

Attorney greatly appreciates the cooperation from the Office in taking the time to provide such interview.

Withdrawn Rejection

The Applicant thanks the Office for withdrawing the 35 USC 112 rejections for claims 1-10.

Claims Rejections - 35 USC §102(b)

The Office rejects claims 1-4, 8-9, 12-13 and 21 under 35 U.S.C. 102(b) as being anticipated by Kocher et al (US 5,919,547). The requirements and statutory language are already of record.

The Office re-states the same prior rejection which was distinguished by including the limitation that the optimum atmosphere was different than ambient air. However, the Office now adds the following:

> "the optimum atmospheric conditions being different than ambient air (having an oxygen concentration between a low -- oxygen concentration and the oxygen concentration of ambient air, during the 45 minutes of ingress air; column 9, lines 5-17; column 17, lines 44-65."

Kocher employs laminates or layers of gas-permeable and gas-impermeable layers and the gas-impermeable portion may be peelably removed from the package to allow atmospheric oxygen to rapidly enter the interior of the package. (col. 4 lines 10-24) Kocher's laminate film is specifically intended to create a sealed, gas-impermeable package (with oxygen transmission rates of <5 cc/100 in^2-day-atm) with no ingress of oxygen into the package until the top layer is peeled (delaminated) from the other layers to allow rapid air ingress into the package via the perforations in the gas-permeable layer. Kocher uses large perforations in the gas-permeable layer to allow air to quickly flow through these perforations to provide a 'swift ingress of atmospheric oxygen' (col. 17, lines 57). The purpose of the perforations in the inner layer of the laminate is not to control or maintain the atmosphere inside the package throughout the entire life cycle of the red meat enclosed within the container. The purpose of these perforations is to allow

rapid influx of oxygen into the package once the outer gas-impermeable layer of film is removed; the goal being to reach ambient oxygen levels (20.9%) as soon as reasonably possible upon peeling off the top layer.

Thus, the Office equates the atmospheric condition during the 'air ingress' of Kocher to the controlled atmospheric condition of the packaging of the present invention. This is not a proper equivalence and the Applicant respectfully disagrees. While Kocher has a temporary disparity between ambient air and the packaging atmosphere of the sealed Kocher package – it is a temporary disparity and the intent is to quickly provide ambient atmosphere (20.9% O_2, 0.03% CO_2) into the package.

Kocher states that " . . . the cavity of the package will preferably contain, prior to delamination of the lid, less than 1% O_2 by volume, more preferably less than 0.5% oxygen, even more preferably less than 0.1% oxygen . . . " (column 18, lines 49-51). In contrast, for fresh produce, the goal is to maintain an aerobic atmosphere (O_2 levels of at least 2% but less than 20.9%) inside the container at all times during storage, transport, and display on the retail shelf, wherein the optimum atmosphere is NOT ambient air. The optimum atmosphere that is desired depends on the type of fresh produce being packaged.

For example, according to a 2001 report by Dr. James Gorny (Postharvest Horticulture Series No. 22A, U C Davis), the recommended optimum atmosphere for storing broccoli florets is 2-3% O_2 and 6-7% CO_2, while the optimum atmosphere for shredded cabbage is 5-7.5% O_2 and 15% CO_2.

In no instance is ambient air (20.9% O_2, 0.03% CO_2) considered the optimum atmosphere for extending the shelf life of fresh-cut produce. Furthermore, since fresh produce continues to respire in the package, consuming O_2 and producing CO_2, water, and heat, there are no circumstances where sealing it in a container made with gas-impermeable film would allow for extended shelf life. If fresh produce is sealed inside a gas-impermeable film and gas-flushed with Kocher's preferred O_2 level of 0.5%, the small amount of oxygen in the headspace of the

container would be rapidly consumed by the produce and lead to anaerobic metabolism resulting in off-odor and off-flavor production as well as decomposition of the plant tissues. Anaerobic atmospheres lead to rapid deterioration of the produce (loss of shelf life) and can pose microbiological safety risks.

The Applicant has clarified that present invention which deploys microperforations in a registered target area, wherein the set of microperforations control the optimum atmospheric conditions within specified O_2 and CO_2 concentrations for the respiring produce. The size, shape, aspect ratio and/or number of microperforations are used establish and maintain the atmospheric conditions according to the teachings of the present invention and the optimum atmospheric is different than ambient air, containing less than about 20.9% O_2 and greater than about 0.03% CO_2.

Thus, the present invention seeks to establish an optimum atmosphere within the package that is different than ambient air whereas Kocher seeks to establish an atmosphere in the package that is the same as ambient air. Even though there is a transition period for the air ingress in Kocher, the 'optimum' atmosphere for Kocher is ambient air. The present claims clearly set forth that there are "a set of microperforations on said polymeric material, wherein said set of microperforations are drill holes and based on a number and a size of said microperforations, control said optimum atmospheric conditions within specified O_2 and CO_2 concentrations for said respiring produce, said optimum atmospheric conditions being different than ambient air".

Therefore the optimum atmospheric conditions for Kocher is ambient air and is distinguished from the optimum atmospheric conditions of the present invention which is an atmosphere that is not ambient air but rather an atmosphere dependent upon a number of factors including the properties of the respiring produce. The respiration rate of the fresh produce depends on a number of factors, including the produce type, variety, age, temperature of storage, the atmosphere it is stored in, and whether it is cut or whole. In the present invention, the respiration rate is matched to the oxygen transmission rate of the film provided by the size and number of microperforations in the film to establish an optimum equilibrium (stable) atmosphere inside the

package that is conducive to reduced respiration rates and shelf life extension. And, different fresh produce items have different respiration rates and different optimum atmospheres for extending quality and shelf life.

As is well known, ambient air contains approximately 0.20948 (21%) O_2 and about 0.00355 (.03%) CO_2. The optimal atmospheric conditions for a wide range of fresh produce items is known to those in the art and published in texts in the field. The optimum atmospheric conditions according to the present invention are calculated such that there are concentrations in the range of <20% O_2 and >1% CO_2 at refrigerated temperatures. Thus the present invention seeks to maintain a stable atmosphere for the respiring produce that is different than ambient air and within the range of <20.9% O_2 and >0.03% CO_2 – which is distinguished from Kocher which establishes an atmosphere that is equal to ambient air.

As noted in Equation 1 of the present application:

(1) $OTR_T = [(M \times RR) / (A_S P (0.21 - Int O_2))] \times 24$ hrs/day

where,

OTR_T	=	total OTR required for the package in cc O_2 / m^2-day-atm
M	=	mass of produce (kg)
RR	=	respiration rate (cc O_2/kg/hr) @ the expected storage temperature
A_S	=	breathable surface area of the package (m^2)
P	=	atmospheric pressure (atm), assumed to be 1
Int O_2	=	desired O_2 atmosphere inside the package stated as a volume fraction (i.e., if the desired O_2 is 8%, the volume fraction is 0.08).

The value 0.21 represents the volume fraction of O_2 in ambient air.

Thus the value of O_2 for the optimum atmospheric conditions can be calculated as ambient air O_2 - Int O_2, wherein Int O_2 represents the desired O_2 atmosphere inside the package.

Thus, as already set forth in the After Final Response and further articulated herein, Kocher does not employ microperforations in order to control of the atmospheric condition, and there is no placement of the microperforations on a target area. The Office improperly equates elements of

the present invention to elements of Kocher and Applicant once again wishes to clarify certain distinctions.

The perforations of Kocher are not intended to control the atmospheric conditions of the package for optimum atmospheric conditions and are only intended to have oxygen quickly enter the package in an undetermined amount to establish ambient air condition (20.9% O_2 and 0.03% CO_2) once the gas-impermeable layer is removed from the laminate structure. While Kocher references sizes (col. 17, lines 66-67; col. 18, lines 1-5), the perforations are not discussed in terms of the control and maintain atmospheric conditions by using the size/shape and/or number of perforations. The ideal perforations of Kocher are "large enough to permit the passage of atmospheric gas therethrough (oxygen, nitrogen, carbon dioxide), but small enough to prevent the passage of liquids or dirt." There is no description in Kocher of employing a certain number/shape/size of the microperforations to control atmospheric conditions with the package or establish an optimum atmospheric condition that is different than ambient air.

Again, as previously stated, the perforations of Kocher are throughout the lid and not in a registered target area. The perforations in the Kocher laminate are occluded by the gas-impermeable layer until the peelable layer is removed to expose the gas permeable layer. The Office states that the 'lid' is a registered target area, however this is not a proper equivalence as the term is used and described in the present invention and the Applicant respectfully disagrees and requests that the Office reconsider this aspect.

In summary - the microperforations of the present invention are used to control atmospheric conditions and establish and maintain an optimum atmosphere that is different than ambient air. Kocher does not describe or in anyway intimate the use of perforations to control atmospheric conditions as described in the present invention and the objective is to establish an ambient air atmosphere. There is no description of employing a registered target area as used in the present invention.

As the present invention employs microperforations to control atmospheric conditions in a registered target area to establish and maintain an optimum atmosphere that is different than ambient air – and this is not in the Kocher patent – the anticipation rejection cannot be maintained. The atmosphere during the transitional phase in Kocher, wherein the ingress of air creates an atmospheric condition different than ambient air, does not represent the optimum atmospheric condition of Kocher. Instead, the optimum atmospheric condition of Kocher is ambient air which is achieved after the ingress of air. Thus independent claim 1 is not anticipated and claims dependent thereof are also not anticipated. Reconsideration and allowance is respectfully requested.

Claim Rejections – 35 USC § 103

The statute from 35 USC 103(a) and applicable language is already of record. The Office has rejected claim 5-6, 14 and 22 as being unpatentable over Kocher. In addition, the Office states that claims 7 and 10-11 are rejected as being unpatentable over Kocher in view of Porchia. Applicant has carefully considered the Office rejections and respectfully submits that the amended claims, as supported by the arguments herein, are distinguishable from the cited references alone or in combination.

The Office states that Kocher discloses a microperforated packaging providing an oxygen flux ranging from at least 1 cc/day-atm and a carbon dioxide transmission rate that is equal to the oxygen transmission, "and especially that the size of the perforations can be varied depending upon the atmospheric gas."

The Office cites the following sections from Kocher starting on Column 17, lines 66-67 and Column 18 lines 1-5 as establishing the above-referenced disclosure. Applicant is enclosing the entire paragraph (col. 17, lines 66-67; col. 18 lines 1-16):

> *Perforations 66 preferably range from about 5 to about 250 microns in diameter, more preferably 25 to 125 microns, and most preferably 75 to 100 microns in diameter. Ideally, the perforations are large enough to permit the passage of*

> *atmospheric gas therethrough (oxygen, nitrogen, carbon dioxide), but small enough to prevent the passage of liquids or dirt. The perforations may be formed by any suitable means, including the use of mechanical, chemical, or electrical devices. Non-limiting examples of such devices include those which perforate with laser energy, electrostatic discharge, ultrasonic waves, flame discharge, needles or other sharp objects, or combinations thereof. Preferred devices are those which produce laser energy or electrostatic discharge. An electrostatic discharge device operates by passing a film between a pair of electrodes and transmitting electricity to one of the electrodes in sufficient voltage that the electrode discharges through the film and to the other electrode, thereby perforating the film.*

As already indicated, the Applicant is unable to discern how the Office draws such conclusions and request that the Office explain in greater detail how this section supports the allegations of the Office. In particular, how does this paragraph establish an oxygen flux ranging from at least 1 cc/day-atm and a carbon dioxide transmission rate that is equal to the oxygen transmission? And, how does Kocher teach that the size of the perforations can be varied depending upon the atmospheric gas? If the Office can elaborate on these matters the Applicant can properly respond.

If the Office is instead referring to Col 5 lines 65-67 and Col 6, lines 1-7, this section refers to the use of 1000 cc O_2/m^2-day - which is not a flux of 1 cc/day-atm. The Applicant has already clarified the difference between OTR and flux and it is also explained in detail in the patent application. Furthermore, as already explained in detail – the object of Kocher is to employ holes to establish an ambient air atmosphere. There is no description or inference to controlling the atmospheric condition within the package to anything other than ambient. While the Office may feel inclined to impart elements of the present invention into this reference – there is simply no basis for the conclusions of the office.

Assuming that the Office is referring to the microperforation size, which is in the range of 5-250 microns, there is nothing to indicate how or why Kocher would control the package atmosphere. Kocher desires to use some sized holes, with some shape and aspect ratio, somewhere on the lid

and in some unknown quantity or number with the overall purpose being to quickly achieve ambient air atmosphere. Even if one were to employ any of the size ranges provided in Kocher, it still does not support any finding for controlling the oxygen flux rate from 200 cc/day-atm to 1,500,000 cc/day – atm and a carbon dioxide transmission rate that is 3.4 to 4.0 times greater than the oxygen transmission rate as noted in claim 5, 6, 14 and 22. The control requires some indication that the number/size/shape/aspect ratio was accounted for to establish the control of the atmosphere for the optimum atmospheric condition.

Applicant submits that Office has no basis or support to establish that Kocher controls the flow of gases – once the delamination occurs, the oxygen is intended to quickly turn meat red. (col. 18, lines 64-67; col. 19 lines 1-10) There is nothing in Kocher to employ perforations to control and maintain atmospheric conditions and no teaching to support such a finding.

The Office further takes official notice that establishing an oxygen flux rate and carbon dioxide flux would be readily determined through routine optimization. Applicant respectfully disagrees and requests that the Office find a prior reference to support this official notice. If it were obvious, then it should be easy for the Office to find a reference that suggests modifying Kocher to include the control and maintaining of the atmosphere using microperforations as described in the present invention. Examiner is kindly reminded that "assertions of technical fact in areas of esoteric technology must always be supported by citation of some reference work" and "allegations concerning specific knowledge of the prior art, which might be peculiar to a particular art should also be supported." MPEP §2144.03. The Applicant notes that a reference that merely discloses or suggests the general concept of perforations in plastic that allow air to flow through the holes is not sufficient to establish a prima facie case of obviousness for microperforations calculated to control the flux rate to establish a certain optimum atmosphere. In other words, the reference or references provided by the Office must disclose or suggest using the size/shape/number/aspect ratio (or some combination thereof) of the microperforations to control the atmospheric conditions as defined by the Applicant's claim 5, 6, 14 and 22.

And, the 'routine optimization' referenced by the Office in concluding that it would have been obvious to vary the oxygen flux and carbon dioxide flux is not supported by the 'desired end result' of Kocher and is therefore not in accordance with those teachings. Kocher is seeking to let ambient air into the container and establish an ambient atmosphere. Kocher is not seeking to establish and maintain certain optimum atmospheric conditions according to established O_2 and CO_2 concentrations different then ambient. There is no reference to establishing any sort of specific oxygen/carbon dioxide concentrations once the scaled perforations are exposed – the interim period during which the Kocher product is seeking ambient air used does not establish control of the optimum atmospheric conditions using the perforations, and the ideal perforations of Kocher are "large enough to permit the passage of atmospheric gas therethrough (oxygen, nitrogen, carbon dioxide), but small enough to prevent the passage of liquids or dirt."

Finally, with respect to obviousness, there is an inventor declaration along with multiple exhibits filed 10/18/2002 that provide exemplary secondary considerations that the Applicant would like to be considered before the Office summarily concludes that control of atmospheric conditions via microperforations is obvious. The success of the product in the marketplace indicates that such a conclusion is unfounded. Reconsideration and allowance is respectfully requested.

With respect to claims 7 and 10-11, which are rejected as unpatentable over Kocher in view of Porchia. The Office acknowledges that Kocher does not disclose a microperforated bag however the Office states that Kocher discloses a 'microperforated packaging', which is disputed herein. The Office states that Porchia discloses a microperforated bag with microperforations in a target area for controlling the weight loss of fruit stored in the bag, and that combining the Kocher and Porchia would result in a bag to control the weight loss of fruit.

As already explained, Kocher does not establish and maintain any atmospheric conditions in a bag or otherwise utilizing microperforations. Porchia, states that it is a packaging bag with microholes throughout that is "independent of product, shape, amount and transpiration characteristics of stored produce as opposed to controlled atmosphere which generally is designed for each specific packaged product." (col. 2, Lines 19-22) Thus, Porchia admits that it is not intended for controlling

atmospheric conditions for specific oxygen/carbon dioxide rates or establishing a stable optimum atmospheric condition. Regarding location in a registered target area as described in the present invention, Porchia helps by defining their distribution. "By "uniformly distributed" it is meant that the microholes are substantially identically and substantially evenly spaced apart from each other over the entire surface area of the web film or bag." (col. 4, lines 37-40) "To obtain the beneficial effects of the present invention, the microholes should be of a uniform size and uniformly distributed throughout the surface of the bag." (col. 4, lines 34-36).

The Office points to Figure 1 of Porchia as establishing microperforations in a target area – but that figure shows the microperforations over the entire bag and not exclusively in a 'small identifiable area' as described and claimed in the present invention.

As already explained, the Porchia packaging "controls the weight loss of produce" and "localized condensation in the bag" by controlling the water vapor transmission rate of the package. Controlling weight loss for fresh produce involves establishing a water vapor transmission rate so that there is not too much moisture in the bag to cause slime formation of the tissue, and at the same time, not allowing too much moisture to escape and result in wilting/desiccation of the produce. This requires a large number of large holes in the bag to get the Padres Number needed, thus, Porchia is specifically addressing water vapor transmission – not the oxygen/carbon dioxide concentrations as in the present invention.

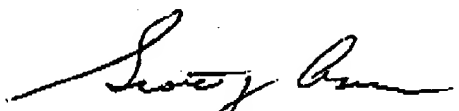
Therefore, Porchia does not control and maintain the oxygen and carbon dioxide concentration inside the bag and they also do not register the microperforations in a small identifiable area on the bag as in the present invention. Taken alone or in combination with Kocher, these references do not disclose, suggest or otherwise provide a motivation to practice the claims of the present invention.

Personal Interview

The Applicant believes that the present remarks and amendments are fully responsive to the Office Action and should place the present application in condition for allowance. No new matter is added. However, if the Office does not grant allowance, the Applicant respectfully requests a Personal Interview with the Examiner and Supervisor. It is believed that a personal interview would materially assist in placing the application in condition for allowance and Applicant respectfully requests a personal interview by communicating with the undersigned attorney with availability.

Applicant requests speedy reconsideration, and further requests that Examiner contact its attorney by telephone, facsimile, or email for quickest resolution, if there are any remaining issues.

Respectfully submitted,



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